

PATENT ABSTRACTS OF JAPAN

A5-013JP
MLX-129
doc. 6

(11)Publication number : 2003-207684
(43)Date of publication of application : 25.07.2003

(51)Int.Cl. G02B 6/30
G02B 6/122
G02B 6/13

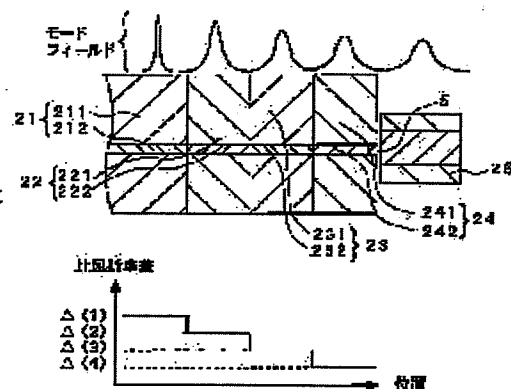
(21)Application number : 2002-005415 (71)Applicant : NEC CORP
(22)Date of filing : 15.01.2002 (72)Inventor : SHIMODA TAKESHI

(54) OPTICAL COUPLER AND ITS MANUFACTURING METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an optical coupler which can reduce optical fiber coupling loss for an optical waveguide having a large specific refractive index difference, has large manufacture tolerance, a high yield, a small size, and large position tolerance, and is equipped with a spot size converting function and can be formed at an arbitrary position on a substrate, and to provide its manufacturing method.

SOLUTION: On one substrate, a 1st waveguide 21 which has a large specific refractive index difference and 2nd waveguides 22 to 24 which have smaller specific refractive index differences stepwise than the 1st waveguide 21 are formed in order. The 1st waveguide 21 to the 4th optical waveguide 24 are optically coupled and decrease in specific refractive index stepwise toward a waveguide end surface 5. Consequently, a spot size is converted into a larger size toward the waveguide end surface 5. The 2nd waveguide 22 to the 4th waveguide 24 are thus formed and then the spot size is smoothly increased to reduce the loss of coupling with an optical fiber 26.



5 : 導波路端面
26 : 光ファイバ
21 : 第1光導波路
211 : 第1コア
212 : 第1クラッド
22 : 第2光導波路
221 : 第2コア
222 : 第2クラッド
23 : 第3光導波路
231 : 第3コア
232 : 第3クラッド
24 : 第4光導波路
241 : 第4コア
242 : 第4クラッド